

TEAC

D00337800A

SERVICE MANUAL

T-H500

AM/FM STREO TUNER

NOTES

- PC boards shown are viewed from parts side.
- The parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
-  Parts marked with this sign are safety critical components.
They must be replaced with identical components- refer to the appropriate parts list and ensure exact replacement.
- Parts of [] mark can be used only with the version designated.
[DM]: JAPAN [E]: EUROPE

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Specifications

FM Section

Tuning Range : 87.50MHz~108.00MHz
(50KHz steps)(EUR)
76.0MHz~90.0MHz
(100KHz steps)(DM)

Usable Sensitivity (IHF): Mono : 10dB μ V(EMF)
50dB Quieting Sensitivity :
Mono : 20dB μ V(EMF)
Stereo : 40dB μ V(EMF)

Image Rejection Ratio : 70dB

Frequency Responses : 20Hz~15KHz,
+0.5dB/-3dB

Distortion (at 60dB μ V)
Mono : 0.15%, Stereo : 0.3%

Signal-to-Noise Ratio (at 65dBf, 1KHz) :
Mono : 70dB
Stereo : 65dB

AM suppression Ratio : 55dB

Stereo Separation (1KHz) : 40dB

Output (Level/Impedance) : 1.2V/2.2Kohm

AM Section

Tuning Range : 522KHz~1620KHz
(9KHz steps)

Usable Sensitivity : 55dB/m

Selectivity : 55dB (at \pm 9KHz)

Image Rejection Ratio : 35dB

Distortion : 1% (at 85 dB/m)

Signal-to Noise Ratio : 40dB (at 85 dB/m)

Output (Level/Impedance) : 270mV/2.2Kohm

General

Power Requirements : 230V AC, 50Hz(EUR)
100V AC, 50/60Hz(DM)

Power Consumption : 8W(EUR)
7W(DM)

Dimensions(W×H×D) : 285×101×312m/m

Weight(net) : 3.0Kg

Accessories

AM Loop Antenna × 1, FM Antenna × 1
RCA pin plug cord × 1,
Remote Control Cable × 1

- Improvements may result in specifications and features changing without notice.

■ ALIGNMENT INSTRUCTIONS

EQUIPMENT NEEDED:

AM Signal Generator
FM Signal Generator
Oscilloscope
VTVM(AC, DC)
Test loop antenna (AM Adjustment)
Dummy antenna (FM Adjustment)
Stereo signal modulator (RDS IN)
Frequency counter
Distortion analyser

IMPORTANT

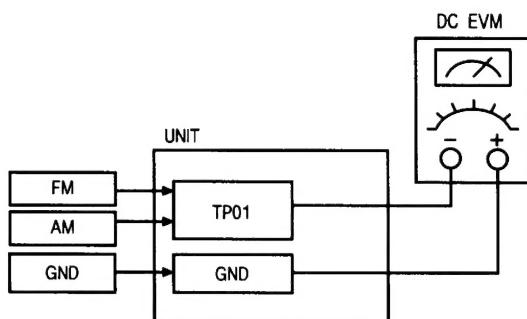
1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

Band \ Item	Modulation	Modulation frequency
AM	30%	400Hz
FM	100% (75KHz Dev.)	400Hz

MEASUREMENTS AND ADJUSTMENTS

1. TUNING FREQUENCY RANGE ADJUSTMENTS

(FM, AM) DC VOLTMETER CONNECT TO TEST POINT TP01 and GND

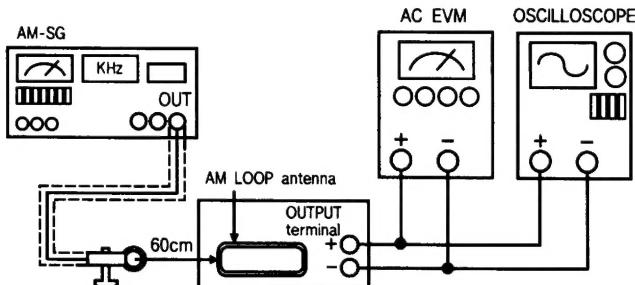


No	Band	Frequency	Adjust for	Adjustment
1	FM	87.50MHz	1.5V	L7
2	AM	522KHz	1V	L202

2. AM TRACKING ADJUSTMENT

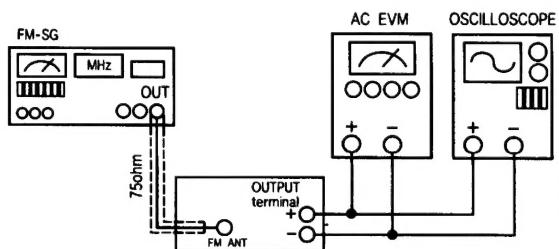
Signal Generator Connects to the AM Ant. Coil through the loop antenna.
Adjust for the indication of VTVM of the wave form of scope to be maximum.

BAND	Step	Frequency	Adjust for	Adjustement
AM	1	612KHz	Maximum sensitivity	L201, T201
	2	1503KHz	Maximum sensitivity	CT21
	3		Repeat steps 1 and 2 several times	



3. FM-RF ADJUSTMENT

Signal Generator Connect to FM ANT JACK (FM IN) through the dummy.



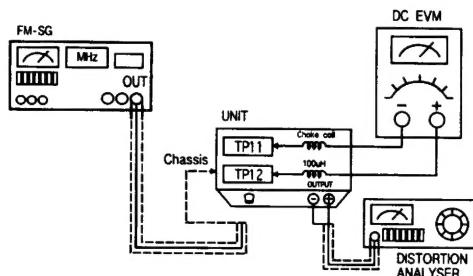
No	Frequency	Adjust for	Adjustment
1	90.10MHz	Maximum Sensitivity	L2, L5, L6
2		Repeat step 1 several times	

4. FM MONO DISTORTION ADJUSTMENT

DC VOLT METER Connect to TP11(-), TP12(+) Through the choke coll (100 μ H)

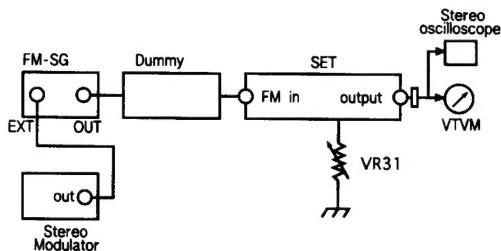
Signal Generator Connect to FM ANT Jack (FM IN) through the dummy.

Distortion Meter Connect to the output.



No	Frequency	Adjust for	Adjustment
1	100.10MHz	DC Voltmeter 0V	T101
2	100.10MHz	Minimum T. H. D	T102
3 Repeat steps 1 and 2 Several times.			

5. FM STEREO SEPARATION



Pilot signal	Adjust for	Adjustment
ON	Different of R and L must be maximum	VR31

NOTE : In case of adjusting the stereo separation, if input is L (or R) channel, R (or L) channel must be maximum.

6. FM/AM AUTO STOP LEVEL ADJUSTMENT

FM SIGNAL GENERATOR Connect to FM ANT Jack(FM IN)through the dummy

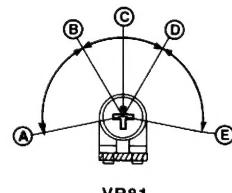
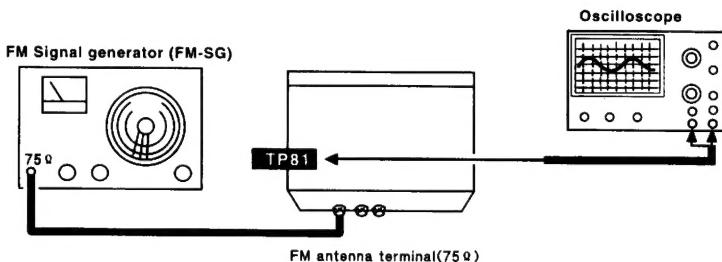
AM SIGNAL GENERATOR Connect to AM ANT, Coil through the Loop antenna

BAND	STEP	SIGNAL GENERATOR	Adjust for	Adjustment
FM	1	100.1MHz 35dB	TUNED	Display OFF
	2	100.1MHz 35dB	TUNED	Display ON
AM	1	999KHz 80dB	TUNED	Display OFF
	2	999KHz 80dB	TUNED	Display ON

7. FM RDS ADJUSTMENT [EUR]

FM Signal Generator(RDS IN) Connect to FM ANT Jack(FM IN) through the dummy

Oscilloscope Connect to TP81(+) GND(-)

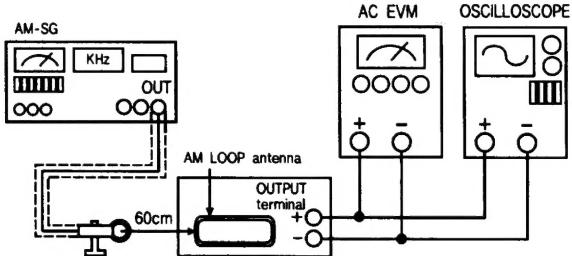


Ⓐ-Ⓑ, Ⓡ-Ⓓ : RDS OFF position.

Ⓑ-Ⓓ : RDS ON position.
(indicator lighting)

Ⓒ : Adjust point of
RDS circuit.
(TP81 : 1.0~1.2V)

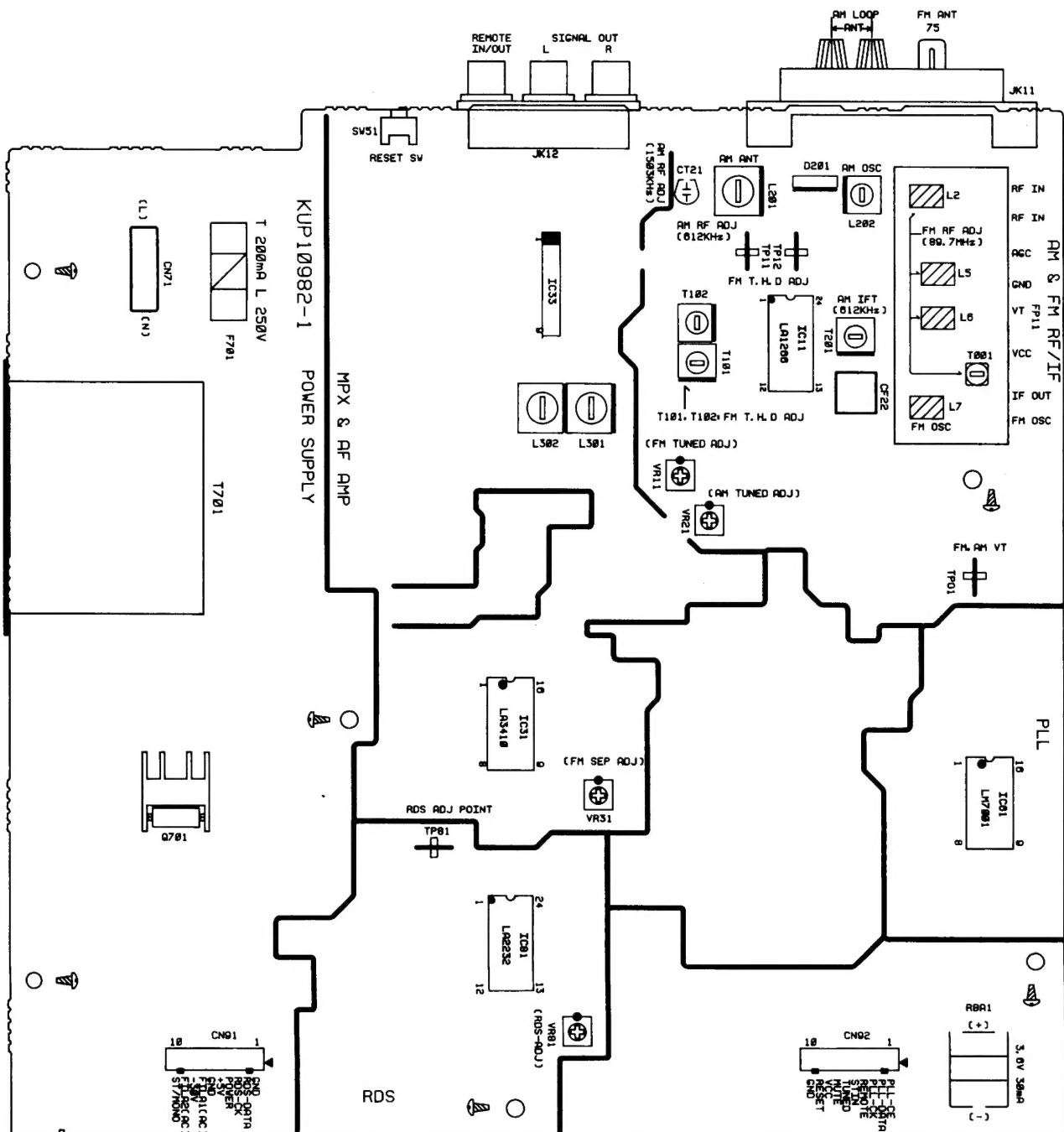
8. AM STEREO SEPARATION [DM]



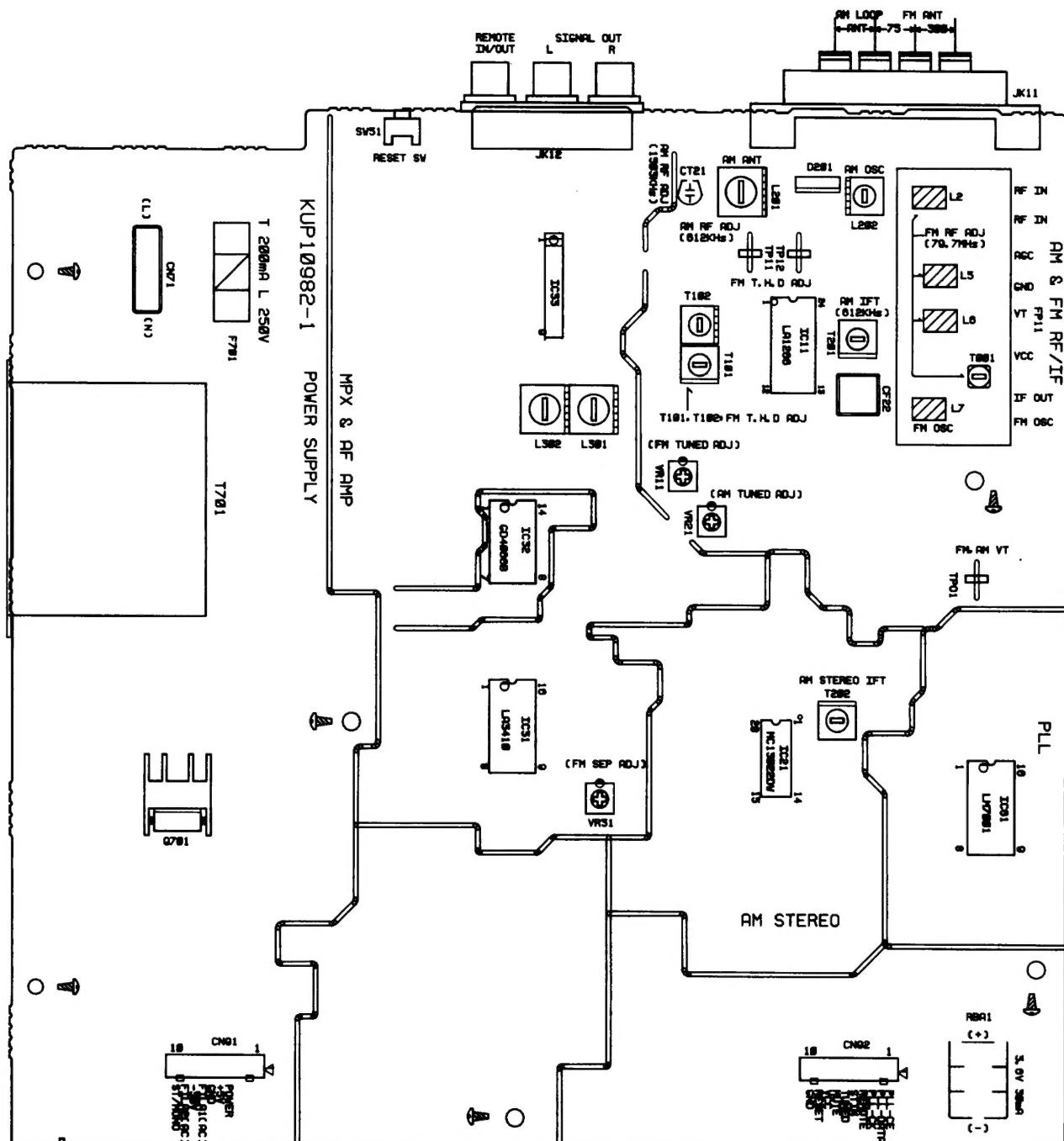
Pilot Signal	Adjust for	Adjustment
ON	Different of R and L must be maximum	T201

NOTE : In case of adjusting the stereo separation, if input is L (or R) channel, R (or L) channel must be maximum.

ADJUSTMENT POINT [EUR]



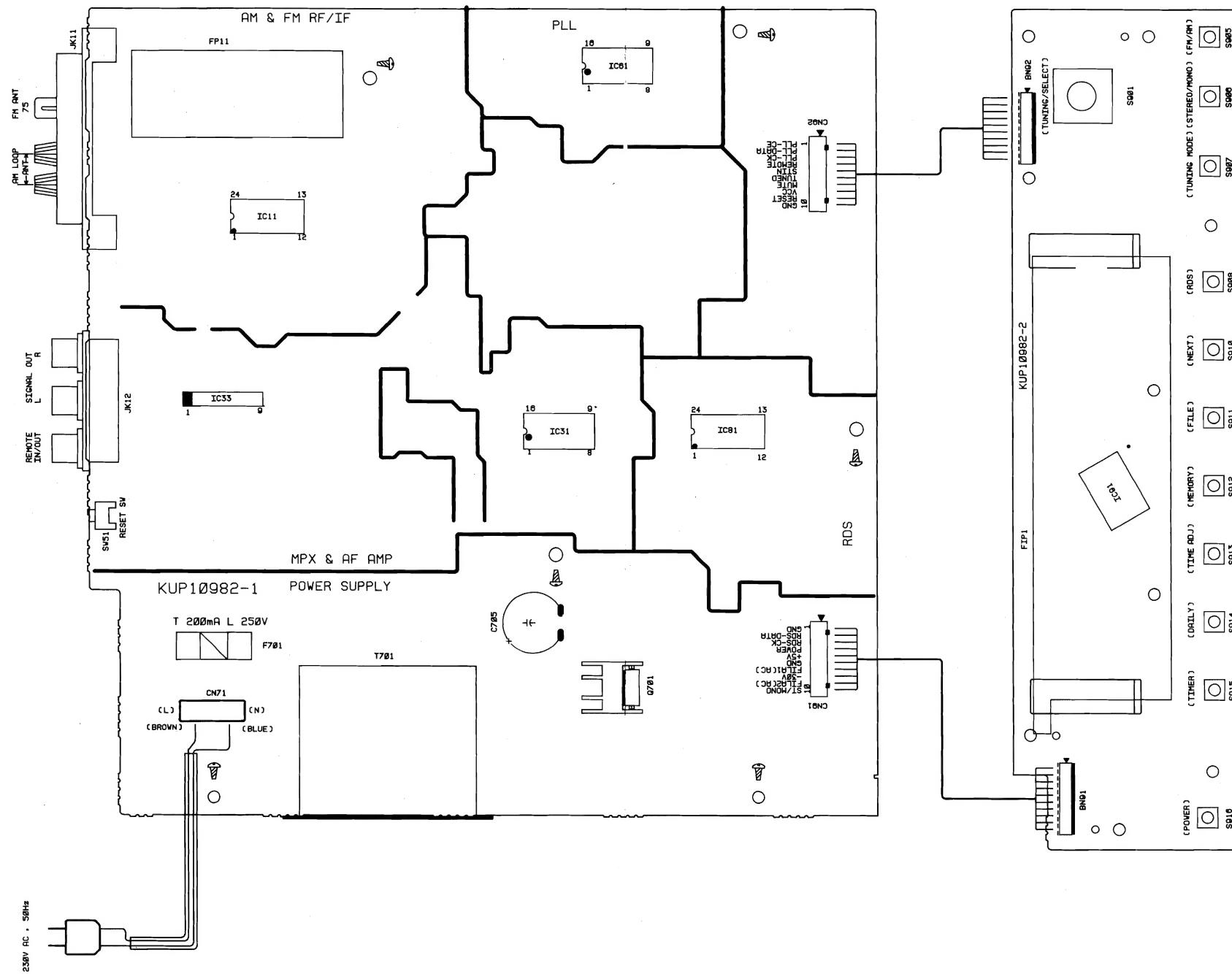
ADJUSTMENT POINT [DM]



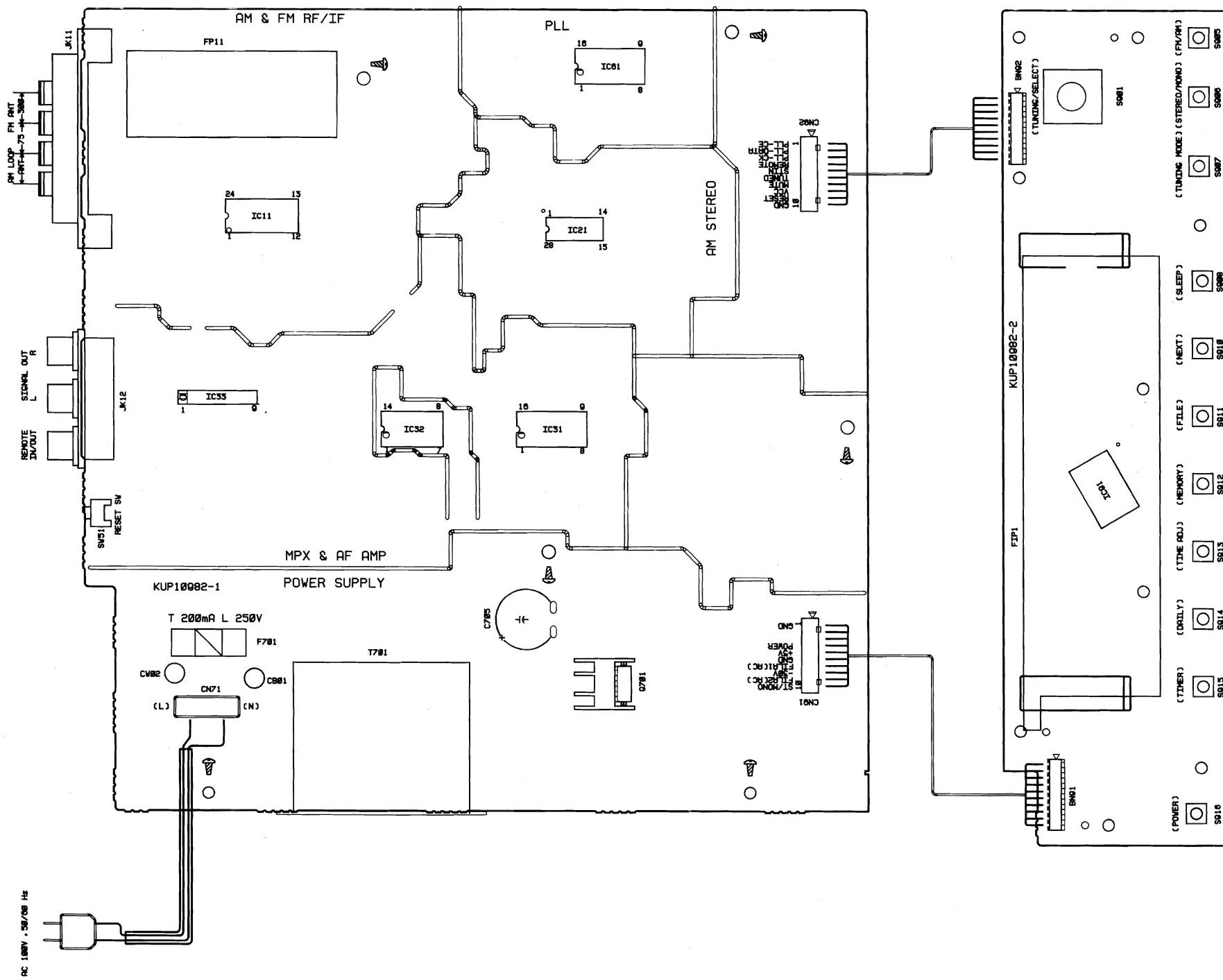
IC FUNCTION

PIN No.	SYMBOL	IN/OUT	DESCRIPTION		
1	REMOT IN	I	REMOTE CONTROL INPUT		
2	VCC	I	VDD CONNECTION		
3	BACK UP/ CE	I	BACK UP MODE CONTROL		
4, 94	TUNING UP / DOWN	I	TUNING UP	TUNING DOWN	HIGH LOW
5	TUNED	I	TUNED DISPLAY INPUT		
6, 7, 9, 10	N.C		NO CONNECTION		
11	RDS DATA	I	RDS DATA INPUT		
8, 12-14	AREA OPTION	I	12, GROUND (EUROPE)		
15, 20	N.C		NO CONNECTION		
16~19	KEY IN	I	KEY MATRIX INPUT		
21~23	KEY OUT	O	KEY MATRIX OUTPUT		
24	N.C		NO CONNECTION		
25	POWER	O	TUNER POWER ON		
26	MUTE	O	MUTE OUTPUT		
27	MONO/STEREO	O	MONO/STEREO SWITCHING OUTPUT		
28~37	N.C		NO CONNECTIN		
38	RESET	I	RESET IN		
39	EXTAL	O	8.0MHz CRYSTAL U-COM OPERATOR		
40	XTAL	I			
41	VSS		GROUND		
42	TX	I	32.768KHz CRYSTAL TIME OPERATOR		
43	TEX	O			
44, 45	N.C		NO CONNECTION		
46	AVREF		+4.8V VDD		
47	AVSS		ANALOG GROUND		
48~70	S0~S22	O	FIP SEGMENT OUTPUT		
71~74	N.C		NO CONNECTION		
75~87	G13~G0	O	FIP GRIDE OUTPUT		
88	VFIP	I	FIP VDD : -30V		
89, 90	VDD	I	+4.8V VDD		
91	VSS		GROUND		
92, 93	N.C		NO CONNECTION		
95	STEREO	I	STEREO INPUT		
96	PLL-CK	O	PLL SERIAL CLOCK OUTPUT		
97	PLL-DI	O	PLL SERIAL DATA OUTPUT		
98	PLL-CE	O	PLL SERIAL CHIP ENABLE OUTPUT		
99	REMOTE OUT	O	REMOTE CONTROL OUTPUT		
100	RES CK	I	RDS CLOCK INPUT		

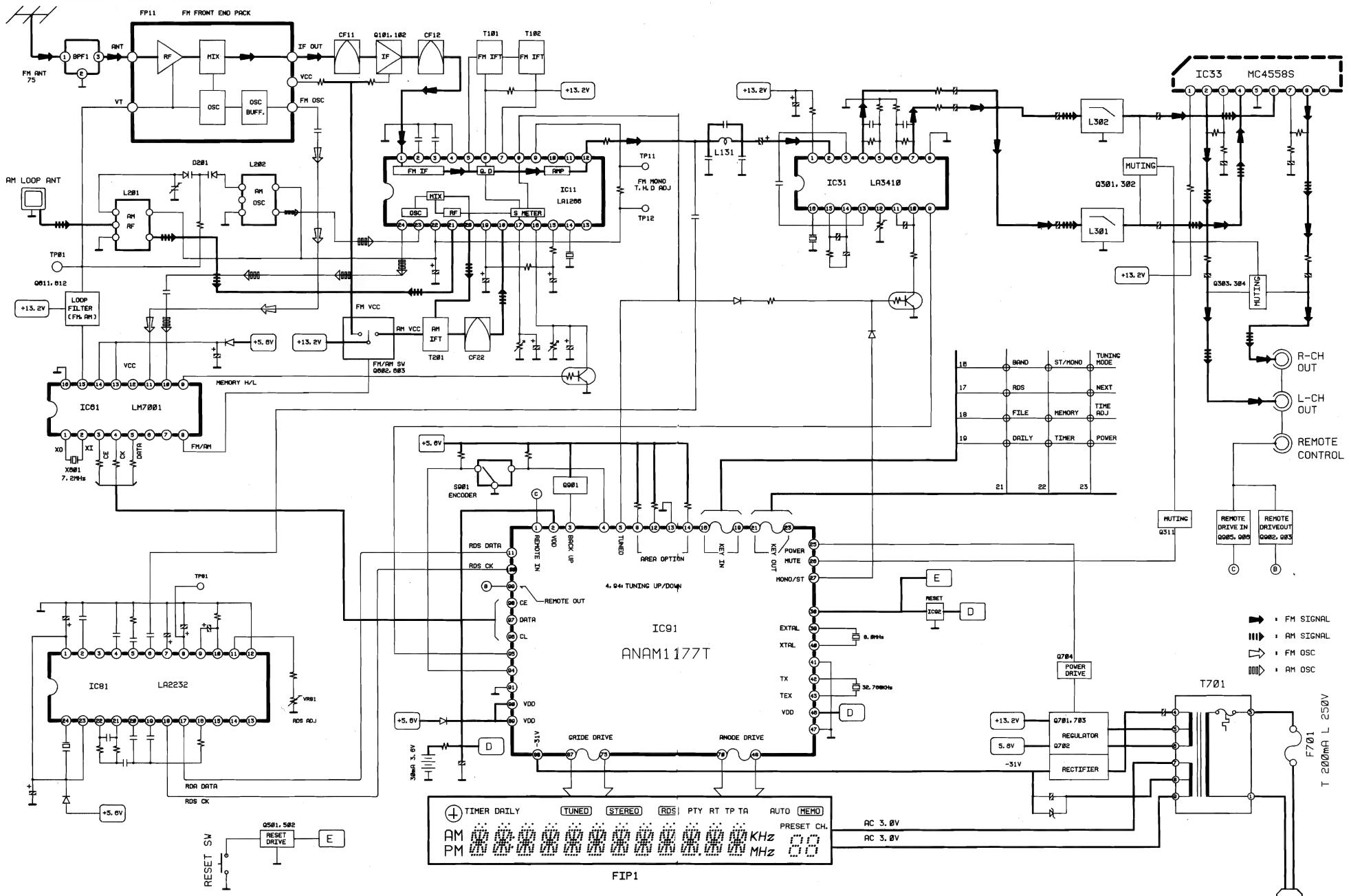
WIRING DIAGRAM [EUR]



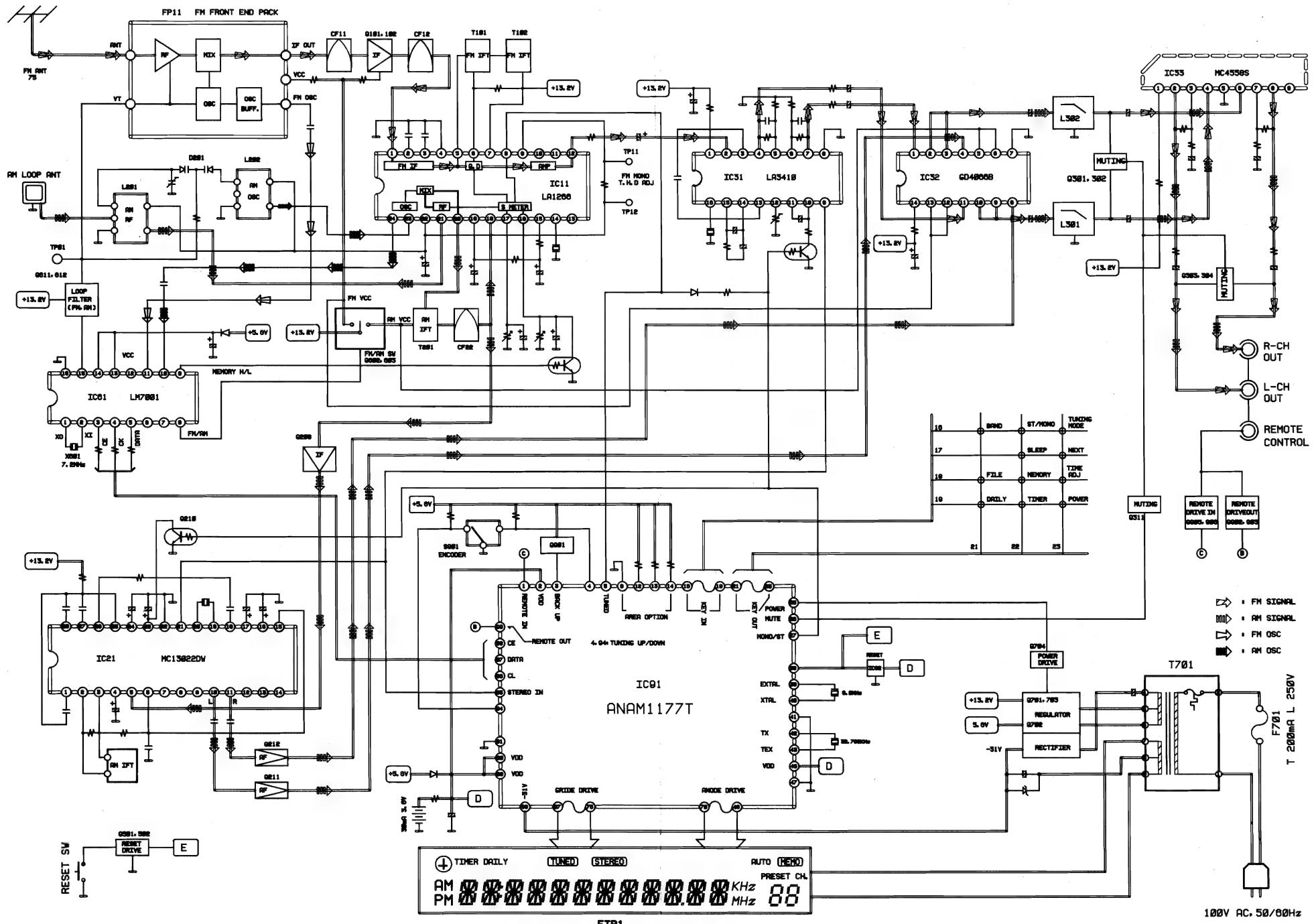
WIRING DIAGRAM [DM]



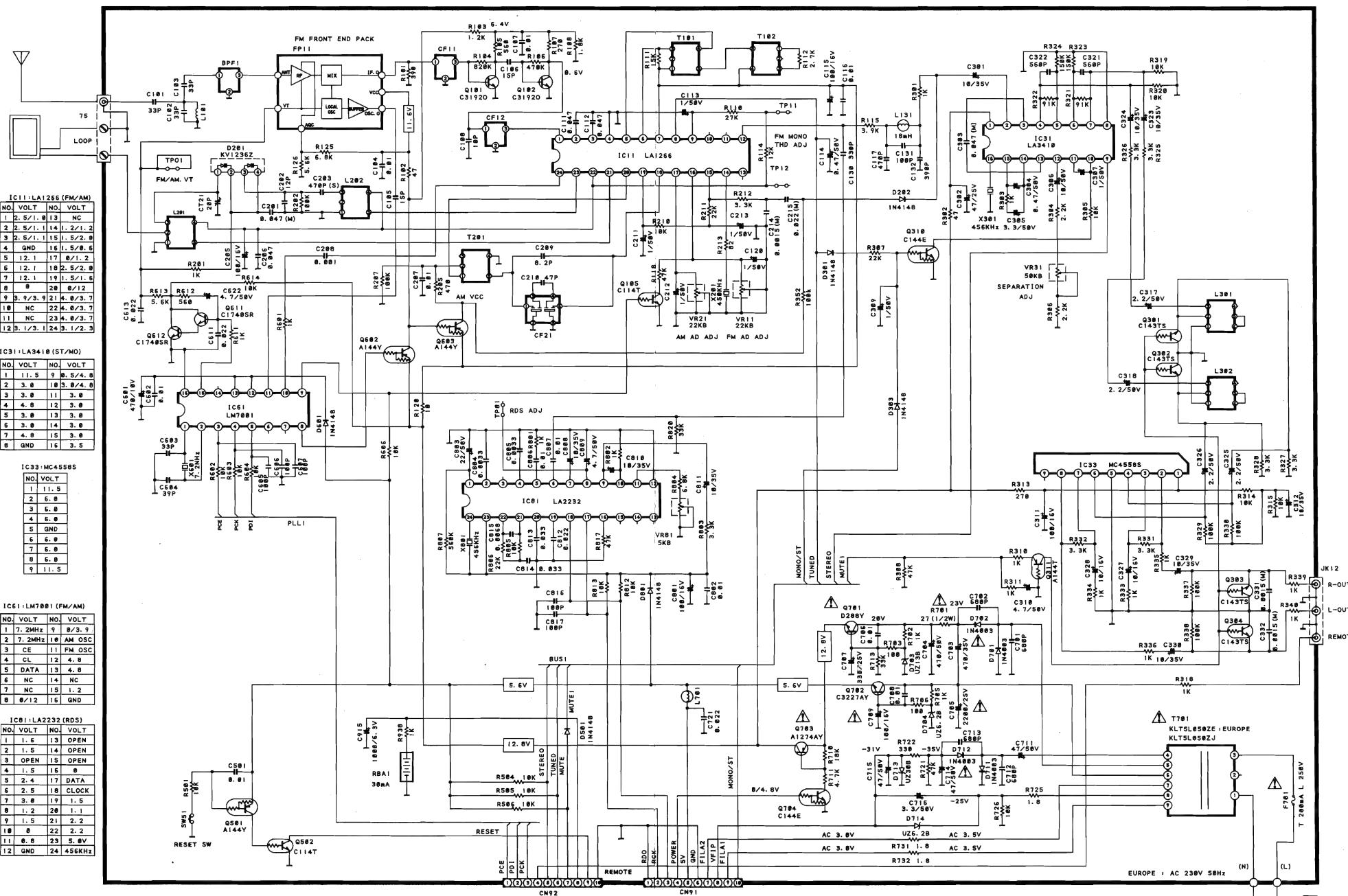
BLOCK DIAGRAM [EUR]

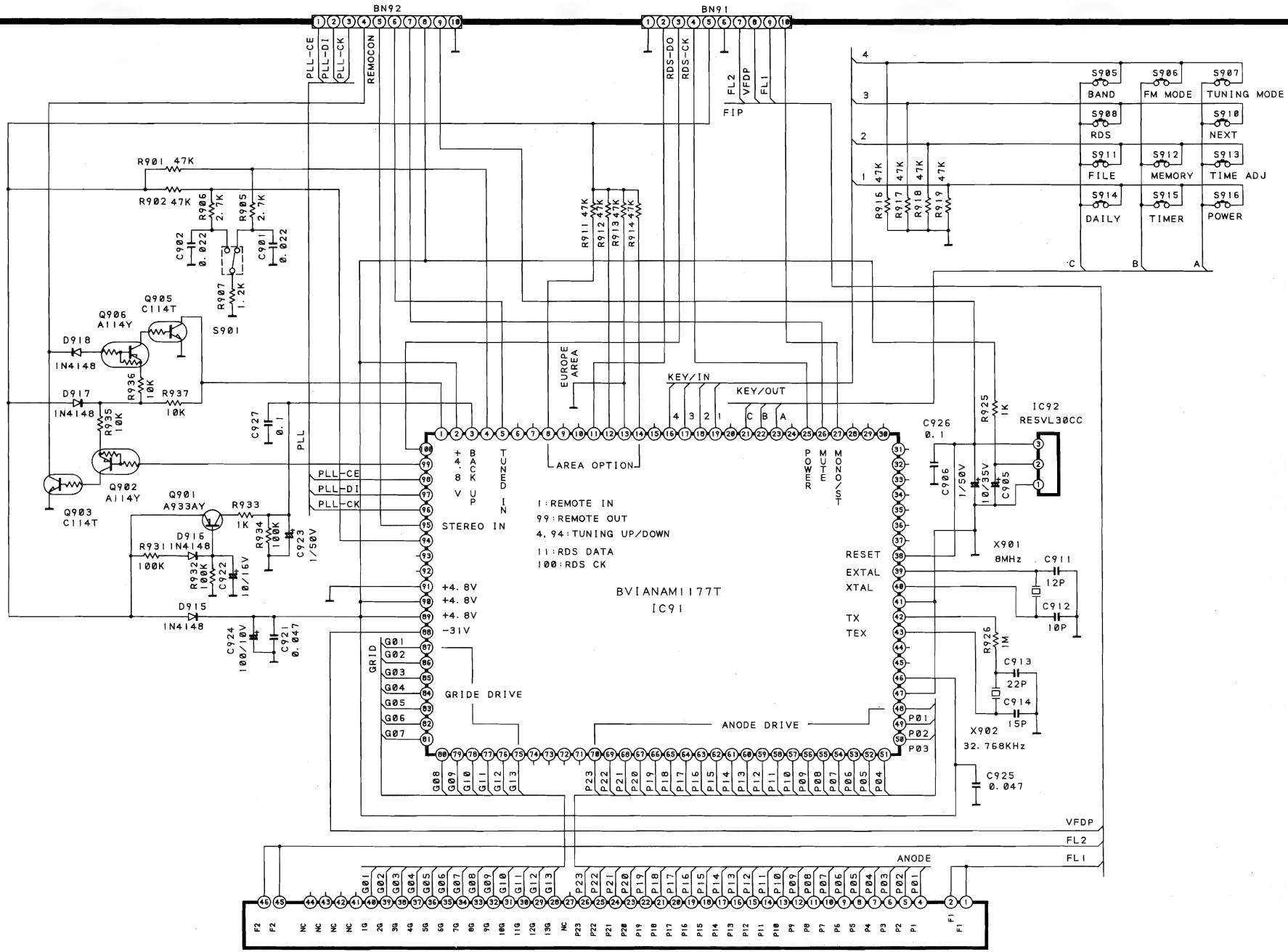


BLOCK DIAGRAM [DM]

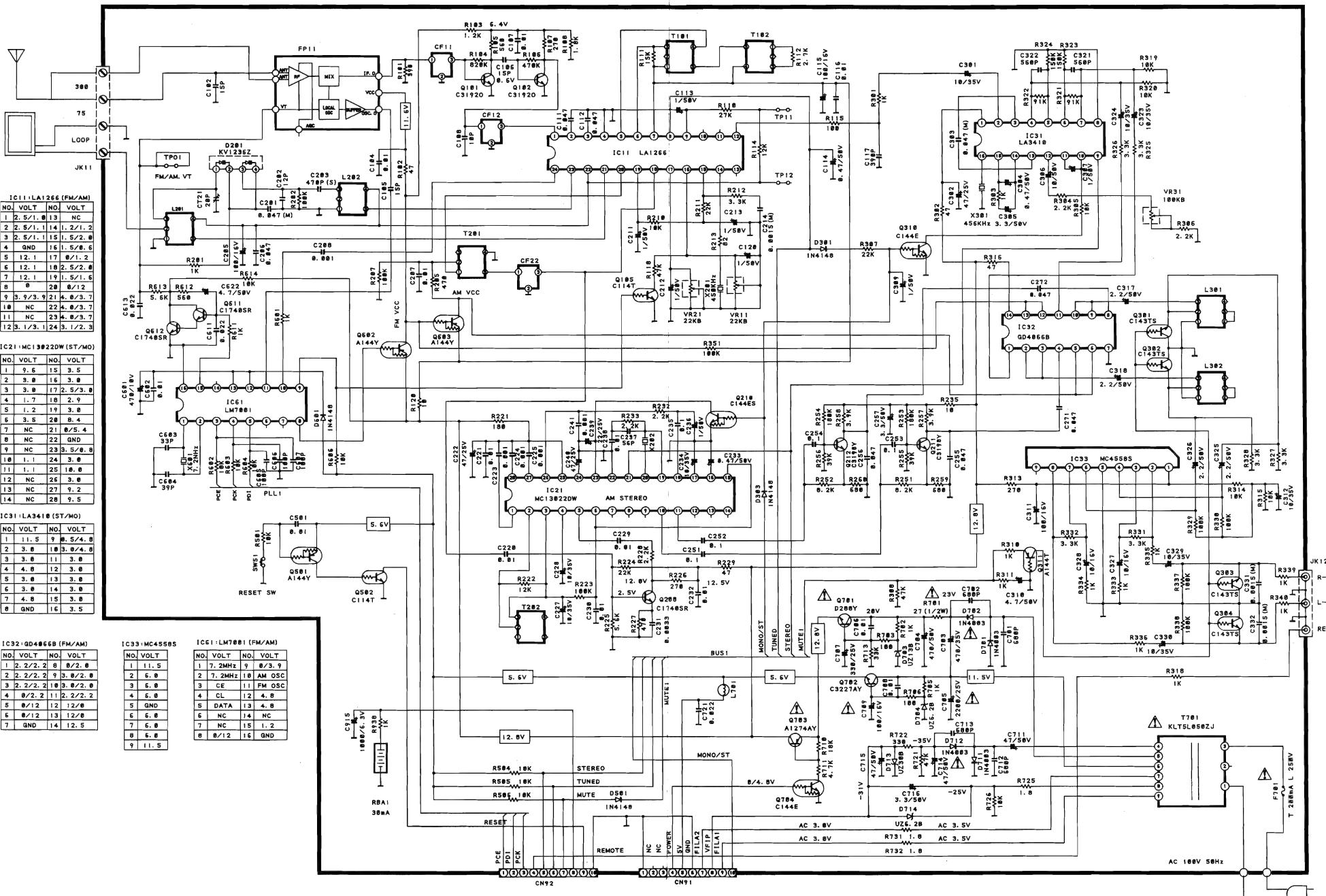


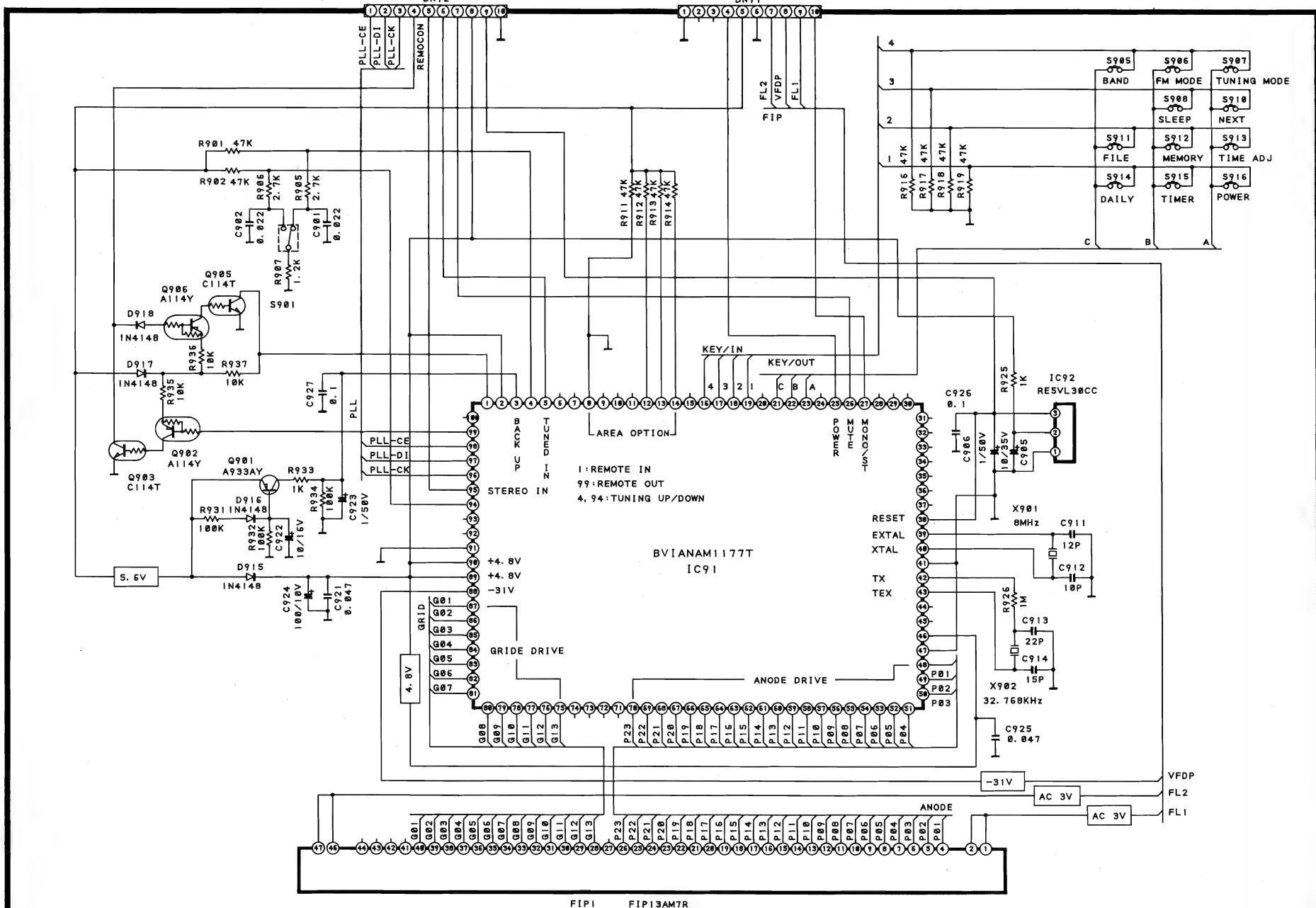
SCHEMATIC DIAGRAM [EUR]



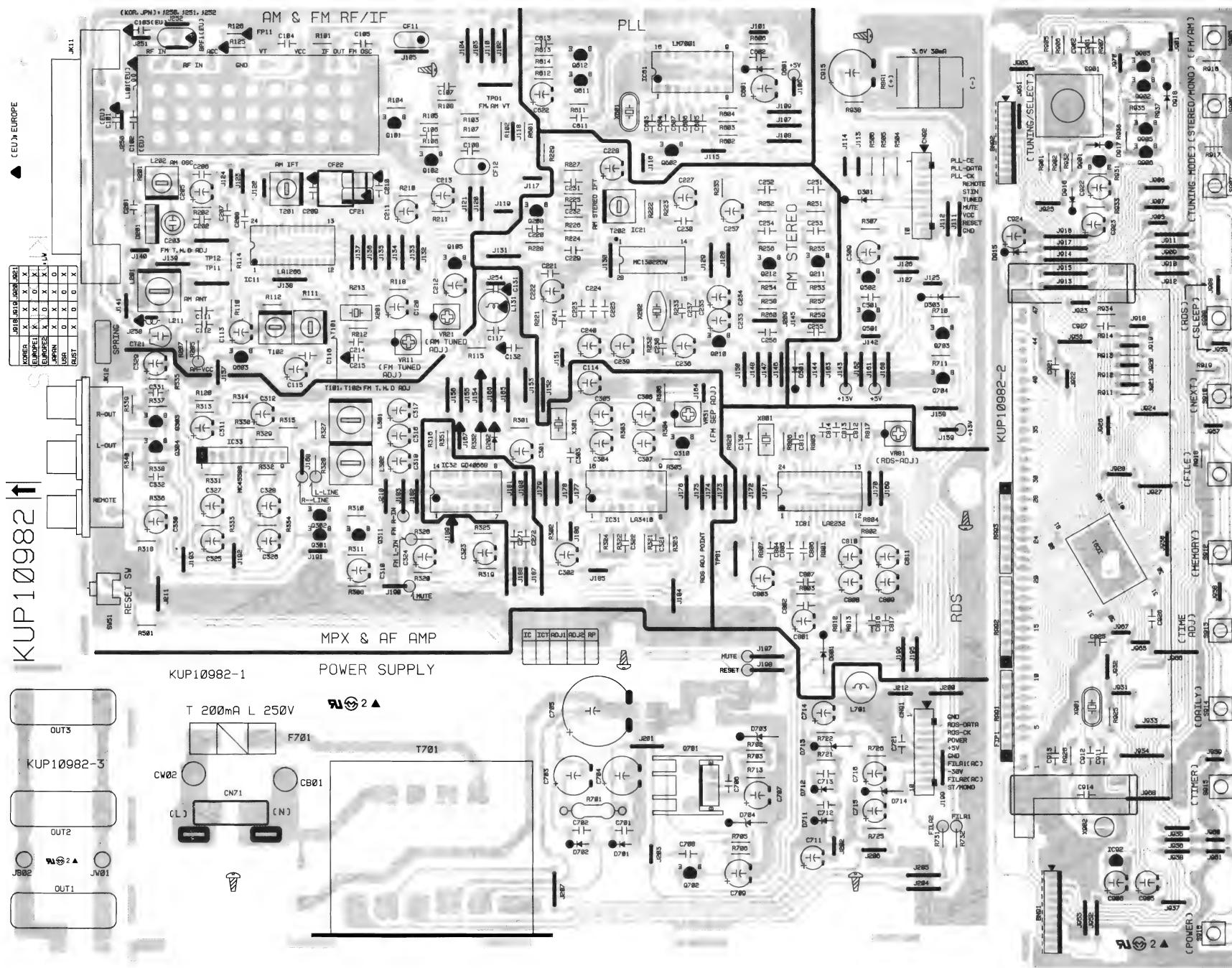


SCHEMATIC DIAGRAM [DM]



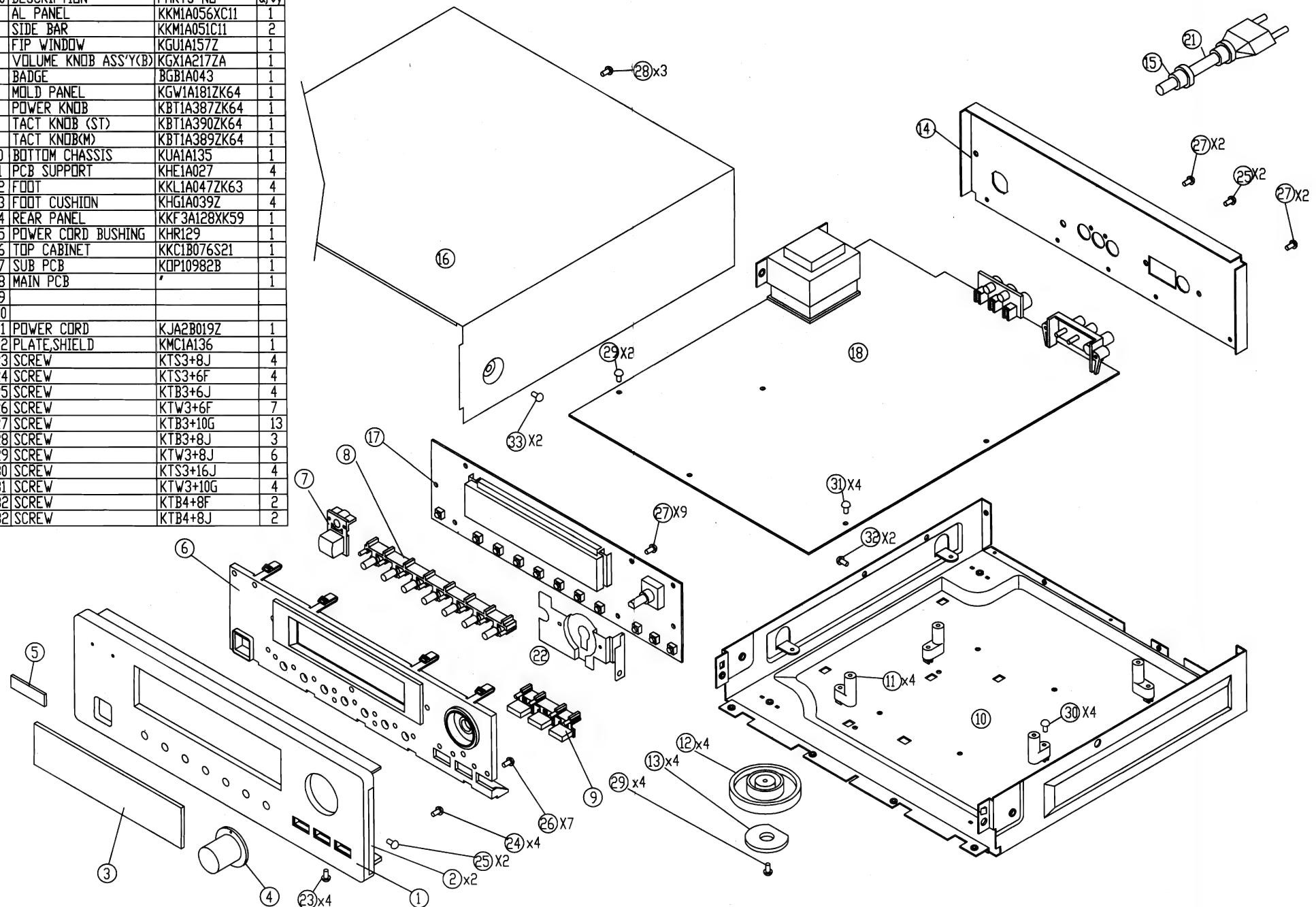


PRINTED CIRCUIT BOARDS



EXPLODED VIEW

NO	DESCRIPTION	PARTS-NO	Q.ty
1	AL PANEL	KKM1A056XC11	1
2	SIDE BAR	KKM1A051C11	2
3	FIP WINDOW	KGUIA157Z	1
4	VOLUME KNOB ASS'Y(B)	KGXI1A217ZA	1
5	BADGE	BGB1A043	1
6	MOLD PANEL	KGW1A181ZK64	1
7	POWER KNOB	KBT1A387ZK64	1
8	TACT KNOB (ST)	KBT1A390ZK64	1
9	TACT KNOB(M)	KBT1A389ZK64	1
10	BOTTOM CHASSIS	KU1A135	1
11	PCB SUPPORT	KHE1A027	4
12	FOOT	KKL1A047ZK63	4
13	FOOT CUSHION	KHG1A039Z	4
14	REAR PANEL	KKF3A128XK59	1
15	POWER CORD BUSHING	KHR129	1
16	TOP CABINET	KKC1B076S21	1
17	SUB PCB	KDP10982B	1
18	MAIN PCB		1
19			
20			
21	POWER CORD	KJA2B019Z	1
22	PLATE,SHIELD	KMC1A136	1
23	SCREW	KTS3+8J	4
24	SCREW	KTS3+6F	4
25	SCREW	KTB3+6J	4
26	SCREW	KTW3+6F	7
27	SCREW	KTB3+10G	13
28	SCREW	KTB3+8J	3
29	SCREW	KTW3+8J	6
30	SCREW	KTS3+16J	4
31	SCREW	KTW3+10G	4
32	SCREW	KTB4+8F	2
32	SCREW	KTB4+8J	2



EXPLODED VIEW [T-H500]

Ref. No.	Part No.	Description	Remarks
1	9A06259800	PANEL, AL [DM]	
	9A06555000	PANEL, AL [EUR]	
2	9A06251600	BAR, SIDE	
3	9A06258900	WINDOW	
4	9A06228300	VOLUME CAP ASS'Y (B)	
5	9A06224200	BADGE, TEAC	
6	9A06317600	PANEL, MOLD AT-77	
7	9A06314500	KNOB, POWER	
8	9A06317500	KNOB, TACT	
9	9A06317400	KNOB, TACT	
10	9A06317700	BUTTOM CHASSIS	
11	9A06259200	SUPPORT, PCB	
12	9A06315500	FOOT	
13	9A06229300	CUSHION, FOOT	
14	9A06259600	PANEL, REAR [DM]	
	9A06317200	PANEL, REAR [EUR]	
15	9A01376900	BUSHING, AC CORD HEYCO(SR-5N-4)	
16	9A06251100	CABINET, TOP	
17,18	9A06260400	TUNER PCB ASS'Y [DM]	
	9A06260410	TUNER PCB ASS'Y [EUR]	
21	9A06242000	CORD,POWER [DM]	
	9A05328100	CORD,POWER [EUR]	
22		PALTE, SIELD	
23	9A01397400	SCREW, KTS3+8J	
24	9A06229000	SCREW, SPECIAL	
25	9A01532600	SCREW, KTB3+6J	
26	9A06234700	SCREW, KTW3+6F	
27	9A01377400	SCREW, KTB3+10G	
28	9A01377200	SCREW, KTB3+8JFZ	
29	9A05339200	SCREW, KTW3+8J	
30	9A01377400	SCREW, KTB3+10G	
31	9A06555100	SCREW, KTB3+12G	
32	9A01477800	SCREW, KTB4+8J	
33	9A05984300	SCREW, KTB4+6FFZ	

INCLUDED ACCESSORIES

Ref. No.	Part No.	Description	Remarks
	9A06054000	MANUAL, INSTRUCTION, JAPAN	
	9A06054400	MANUAL, INSTRUCTION, MULTI	

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
BAT1	9A04880100	BATTERY,RECHARGEABLE	JK11	9A04875900	TERMINAL,ANT DC-D2100
BPF1	9A05195100	B.P.F. 87.5-108MH [EUR]	JK11	9A06259400	TERMINAL , ANT 75/300
BN91,92	9A06261900	WIRE ASS'Y	JK12	9A06259500	TERMINAL , RCA JACK
C203	9A01507300	C,STYROLE 470PF/50V	JW11	9A06171900	WIRE ASS'Y
C703	9A06258800	C, ELECT	L101	9A04875000	COIL,FILTER DC-D2100
C704	9A06171800	C,ELECT	L131	9A04883300	COIL [EUR]
C705	9A01402000	C,ELECT 2200UF/25V	L201	9A06259900	COIL , AM ANT2
CF11, 12	9A01407600	FILTER,CERAMIC FM 10.7MHZ	L202	9A05332500	COIL , AM OSC 2B008Z
CF21	9A01407700	FILTER,CERAMIC SFZ450F [EUR]	L211	9A06274000	COIL,02C6R8KT [EUR]
CF22	9A06258300	FILTER, CERAMIC SFG450E [DM]	L301,302	9A01407300	COIL, MPX
CN71	9A05329000	WAFER MOLEX35309-0210	L701	9A03746700	COIL,INDUCTOR
CN91,92	9A05330700	WAFER MOLEX 53014-1010	Q101,102	9A05197300	TR,KTC3192OT
CT21	9A01405900	C,VARIABLE 20PF A020S12	Q105	9A05911500	TR,DTC114TS
D201	9A01405200	DIODE,KV1236Z TOKO	Q208	9A05197300	TR,KTC3192OT
D202	9A01390500	DIODE,1N4148MT	Q210	9A06066800	TR,DTC144EST
D301,303	9A01390600	DIODE,1N4148T	Q211,212	9A05892800	TR,KTC3198YT
D501	9A01390600	DIODE,1N4148T	Q301,302	9A06261800	TR, DTC143TST
D601	9A01390500	DIODE,1N4148MT	Q303,304	9A06261800	TR, DTC143TST
D701,702	9A05194600	DIODE,1N4003SRT	Q310	9A06066800	TR,DTC144EST
D703	9A05902000	DIODE,ZENER,13V	Q311	9A06261700	TR, DTA144TST
D704	9A05902300	DIODE,ZENER,6.2V	Q501	9A05196400	TR,DTA114YST
D711,712	9A05194600	DIODE,1N4003SRT	Q502	9A05911500	TR,DTC114TS
D713	9A05902200	DIODE,ZENER,30V	Q602,603	9A05196400	TR,DTA114YST
D714	9A05902300	DIODE,ZENER,6.2V	Q611,612	9A05939500	TR,2SC1740SR
D801	9A01390600	DIODE,1N4148T	Q701	9A05937400	HEAT SINK ASSY
D901	9A01390500	DIODE,1N4148MT	Q702	9A05939600	TR,KTC3227Y
D915-918	9A01390500	DIODE,1N4148MT	Q703	9A05939700	TR,KTA1274Y
F701	9A05911100	FUSE,200MAL/250V	Q704	9A06066800	TR,DTC144EST
FIP1	9A06258000	F.I.P FIP13AM7R	Q901	9A05911600	TR,2SA933SR
FP11	9A05938700	PACK,TUNER [EUR]	Q902	9A05196400	TR,DTA114YST
	9A06260300	PACK, FM FTA4J508H [DM]	Q903,905	9A05911500	TR,DTC114TS
			Q906	9A05196400	TR,DTA114YST
IC11	9A05938800	IC,LA1266	R701	9A06317800	R., FUSIBLE 27-OHM/0.5W
IC21	9A06258500	IC, AM STEREO MC13022DW	S901	9A06258100	ENCODER , VR EC16B24104
IC31	9A05938900	IC,LA3410	S905-916	9A04882500	SW,TACT SKHV10910A
IC32	9A06261600	IC,GD4066B	SW51	9A04882400	SW,TACT DC-D2100
IC33	9A05195800	IC,KA4558S	T101	9A05940200	IFT,FM,KLI3B020-G
IC61	9A04323300	IC,LM7001	T102	9A05940300	IFT,FM,KLI3B021-G
IC81	9A05939100	IC,LA2232	T201	9A05939400	IFT,AM [EUR]
IC91	9A06258400	IC,TUNER U-COM CXP82432	T201	9A06260100	I.F.T , AM 2B105-G [DM]
IC92	9A05317300	IC,(RESET) RE5VA30CC	T202	9A06260000	I.F.T , AM 2B104-G
			T701	9A06260200	TRANS,POWER [DM]
			T701	9A06317900	TRANS,POWER [EUR]
			VR11,21	9A05317700	VR, SEMI FIX EVNDJAA03B24
			VR31	9A05317500	R,SEMI FIXED EVNDJAA03B15 [DM]
					R,SEMI FIXED EVNDJAA03B54 [EUR]
			VR81	9A05940500	R,SEMI FIXED EVNDJAA03B53

Ref. No.	Part No.	Description
X201	9A05940600	RESONATOR,BFU450C4N
X202	9A06258200	RESONATOR,CSA3.60MGF103
X301	9A05317200	RESONATOR,CERAMIC CSB456F11
X601	9A04874300	CRYSTAL, DC-D2100
X801	9A05940800	RESONATOR,CERAMIC CSB456F33
X901	9A05193000	CRYSTAL, DC-D1800
X902	9A05188800	CRYSTAL 32.768KHZ DT-38

Ref. No.	Part No.	Description
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TEAC®

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TEAC DEUTSCHLAND GmbH	Bahnstrasse 12, 65205 Wiesbaden-Erbenheim, Germany Phone: 0611-71580
TEAC FRANCE S.A.	17, Rue Alexis-de-Tocqueville, CE 005 92182 Antony Cedex, France Phone: (1) 42.37.01.02
TEAC NEDERLAND BV	Perkinsbaan 11, 3439 ND Nieuwegein, Nederland Phone: 03-402-30229
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